CLAIMS

Please amend the claims as follows:

1. (currently amended) A method of servicing a request to a redundant storage array including a plurality of storage media containing data and related parity data, said method comprising:

a storage adapter receiving, from an operating system of a data processing system, a command to place a selected storage medium among said plurality of storage media that is electrically coupled to said storage adapter in an off-line state to perform an update to control program for said selected storage medium;

said storage adapter receiving a data request for data stored by a selected storage medium among said plurality of storage media; and

in response to receiving said data request while an the selected storage medium is electrically coupled to the adapter and the update to the control program of said selected storage medium is being performed, servicing said data request by reference to said data and said related parity data of other storage media among said plurality of storage media.

2. (original) The method according to Claim 1, said step of servicing further including:

automatically reconstructing requested data utilizing said data and related parity data from said other storage media; and

outputting said reconstructed requested data.

3. (original) The method according to Claim 2, said step of automatically reconstructing further including:

determining a type of said data request; and

automatically reconstructing requested data utilizing said data and said related parity data only in response to determining that said data request is a data read request.

15

4. (original) The method according to Claim 3, said step of determining further comprising:

in response to determining that said data request is a data write request, logging said data write request;

storing new data for said data write request;

setting said particular storage medium to a rebuild status;

rebuilding said particular storage medium utilizing said data and related parity data from said other storage media; and

setting said particular storage medium to online status.

5. (original) The method according to Claim 1, wherein said particular storage medium is a disk, and said redundant storage array is a redundant disk array and wherein:

receiving a data request for data stored by a particular storage medium comprises receiving a data request for data stored by a particular disk of said redundant disk array.

6. (currently amended) An adapter for use with a data processing system including a redundant storage array including a plurality of storage media containing data and related parity data, said adapter comprising:
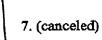
an adapter processor including:

an updating circuit for receiving a data request for data stored by a selected storage medium among said plurality of storage media;

a command processing circuit for receiving, from an operating system of a data processing system, a command to place a selected storage medium among said plurality of storage media that is electrically coupled to said storage adapter in an off-line state to perform an update to control program for said selected storage medium; and

a request servicing circuit, in response to receiving said data request while the selected storage medium is electrically coupled to the adapter and the an update to said control program for said selected storage medium is being performed, for servicing said data request by reference to said data and said related parity data of other storage media among said plurality of storage media.

16

7. (canceled)

8. (original) The adapter according to Claim 6, wherein said request servicing circuit is an exclusive-OR (XOR) processor for automatically reconstructing requested data utilizing data and related parity data from other storage media during said updating, in response to a data request by said system processor, said XOR processor coupled to an adapter processor.

9. (original) The adapter according to Claim 6, further including:
a non-volatile random access memory (NVRAM) for logging data write requests.

10. (original) The adapter according to Claim 6, further comprising:
a storage location for temporarily storing write data for said selected storage media during said updating.

11. (original) The adapter according to Claim 10, wherein said storage location is an adapter cache.

12. (original) The adapter according to Claim 11, wherein said adapter cache further includes:
a battery-backup circuit, for preserving data stored on said adapter cache.

13. (original) The adapter according the Claim 8, wherein said data request is a data read request.

14. (original) A disk system comprising:
an adapter according to Claim 6; and

17

a redundant storage array.

15. (original) The adapter according to Claim 6, wherein said redundant storage array is a redundant array of inexpensive disks (RAID).

16. (currently amended) A data processing system, comprising:

    a system processor;

    a system memory coupled to said system processor;

    a redundant storage array; and

    an adapter including a redundant storage array including a plurality of storage media containing data and related parity data, said adapter further including:

        <u>an adapter processor including:</u>

            an updating circuit for receiving a data request for data stored by a selected storage medium among said plurality of storage media;

            <u>a command processing circuit for receiving, from an operating system of a data processing system, a command to place a selected storage medium among said plurality of storage media that is electrically coupled to said storage adapter in an off-line state to perform an update to control program for said selected storage medium;</u> and

    a request servicing circuit, in response to receiving said data request while an update to said selected storage medium is being performed, for servicing said data request by reference to said data and said related parity data of other storage media among said plurality of storage media.

17. (original) The data processing system according to Claim 16, wherein said redundant storage array is a redundant array of inexpensive disks (RAID).

18

18. (original) The data processing system according to Claim 16, wherein said redundant storage array stores data in stripes, wherein each said stripe further includes data and related parity data.

19. (canceled)

20. (original) The data processing system according to Claim 18, wherein said request servicing circuit is an exclusive-OR (XOR) processor for automatically reconstructing requested data utilizing said data said related parity data from other storage media during said updating, in response to a data request by said system processor, said XOR processor coupled to said adapter processor.

21. (original) The data processing system according to Claim 16, wherein said adapter further comprising:

a non-volatile random access memory (NVRAM) for logging all data write requests and data read-with-intent-to-write requests.

22. (original) The data processing system according to Claim 16, further including:

a storage location for temporarily storing all write data for said selected storage media during said updating.

23. (original) The data processing system according to Claim 22, wherein said storage location is a temporary space on other storage media of said redundant storage array.

24. (original) The data processing system according to Claim 22, wherein said storage location is an adapter cache.

19

25. (original) The data processing system according to Claim 24, wherein said adapter further includes a battery backup circuit.

26. (currently amended) A computer program product comprising:

a computer-readable medium;

command receiving code within said computer-readable medium for receiving, from an operating system of a data processing system, a command to place a selected storage medium among a plurality of storage media that is electrically coupled to a storage adapter in an off-line state to perform an update to control program for said selected storage medium;

updating code encoded within said computer-readable medium for receiving a data request for data stored by a the selected storage medium among a the plurality of storage media; and

request servicing code encoded within said computer-readable medium, in response to receiving said data request while an update to said control program for said selected storage medium is being performed and the selected storage medium is electrically coupled to the adapter, for servicing said data request by reference to data and related parity data of other storage media among said plurality of storage media.

20